TAMIL NADU AGRICULTURAL UNIVERSITY
Controller of Examinations
TNAU, Coimbatore – 3.

Examination Pattern for 2018 Batch

- Midterm exam shall be with fully objective type questions (MCQ).
- MCQ type questions shall be increased to 50 marks in final exam, followed by descriptive part for 20 marks.
- Comprehension type questions, problem based questions and case studies may be included in disciplines wherever possible in the final examinations. The Controller of Examination, TNAU is empowered to grant and award a grace mark of 1.0 for a pass in a course, as may be required.

  Midterm and practical marks converted to 50% marks. Midterm exam evaluation shall be treated as internal while practical evaluation remains external.

Question Paper Setting and Evaluation

The mid semester exam is conducted using the pooled objective type questions from all colleges Paperless exam (exam pad)/OMR/Computer mode mechanically evaluated with OMR reader at Controller of examinations, TNAU and results communicated. The semester final theory question paper for all the courses will be set by the Controller of Examinations after obtaining question papers from external examiners outside the University.

For 1+1, 2+1, 1+2 Courses

(i) Mid sem exam, MCQ type conducted for 20 marks, converted to 10 marks for final grading (50%)

(ii) Final practical exam conducted for 40 marks, converted to 20 marks for final grading (50%)

(iii) Final theory exam conducted for 70 marks

[Final theory exam comprises of MCQ, comprehension type question, descriptive part and practical portion (procedure, short notes etc.,)]

Total - 100 marks

For 1+0, 2+0, Courses

- Mid sem exam conducted for 60 marks (MCQ – 40 Marks, Match – 20 marks), converted to 30 marks (50%) for final grading
- Final theory exam conducted for 70 marks

{Final theory exam comprises of MCQ, comprehension type question, descriptive part from theory }

Total - 100 marks

For 0+1,0+2 Courses

(Except Tamil and English courses all the other course examination may be conducted by the course teacher)

(i) Mid sem exam conducted for 60 marks (MCQ – 40 Marks, Match – 20 marks), converted to 30 marks (50%) for final grading

(ii) Final Practical exam conducted for 70 marks

Abstract

Revised UG Examination Pattern (Effective from 2018 Batch)

No.	Details	Mid Sem.		Final (T)	Practical		Total Marks
		Actually Written	Reduced to (A)	(B)	Actually Written	Reduced to ©	(A+B+C)
Regular Exam							
1.	Course with practical	20	10	70	40	20	100
2.	Course without practical	60	30	70	-	-	100
3.	Courses with practical alone	60	30	-	70	70	100

Abstract

Revised UG Examination Pattern (Effective from 2018 Batch)

Reappearance/Improvement

No.	Details	Mid Sem. (A)	Final theory (B)	Practical		Total Marks (A+B+C)
				Actually Written	Reduced to (C)	
Reappearance Examination (along with junior batch)						
1.	Course with practical - Appearing for theory alone	Retaining original Mid sem Marks	70	Retaining Regular Practical Marks		100
2.	Course with practical - Appearing for both theory and practical	Retaining original Mid Sem Marks	70	40	20	100
3.	Course without practical	Retaining original Mid Sem Marks	70	-	-	100
4.	Courses with practical alone	Retaining original Mid Sem Marks	-	70	-	100

Abstract

Revised UG Examination Pattern (Effective from 2018 Batch)

Reappearance Examination (Summer)

No.	Details	Mid Sem.		Final theory (A)	Practical		Total Marks (A+B)
		Actually Written	Reduced to		Actually Written	Reduced to (B)	
Reappearance Examination (Summer)							
1.	Course with practical (Appearing for theory alone)	-		80	Retaining Regular Practical Marks		100
2.	Course with practical (Appearing for both theory and practical)	-		80	40	20	100
3.	Course without practical	-		100	-	-	100
4.	Courses with practical alone	-			100	-	100

New Examination Pattern Mid Sem – 2018 Batch (With Practical)

Total Marks : 20

Duration : 1 hour

Part – A

[40 x 0.5 =20]

Multiple choice Questions (Choose / Fill-ups / Statements) (40 Questions)

New Examination Pattern Mid Sem – 2018 Batch (Without Practical)

Total Marks: 60
Duration: 1 ½ hours

Part – A [80 x 0.5 =40]

Multiple choice Questions (Choose/ Fill-ups/ Statements) (80 Questions)

Part – B

Match the following (10 questions) (10 x 2 = 20)

New Examination Pattern Mid Sem – 2018 Batch (Only Practical)

Total Marks : 60

Duration : 1 ½ hours

[80 x 0.5 = 40]

Part – A

Multiple choice Questions (Choose/ Fill-ups/ Statements) (80 Questions)

Part – B

Match the following (10 questions) (10 x 2 = 20)

New Examination Pattern For Final Theory (Courses with/with out Practical) – 2018 Batch

Total Marks : 70

Duration : 3 hours

Part – A [80 x 0.5 =40]

- Multiple choice Questions
- 60 Questions from Theory Portion
- 20 Questions form Practical Portion

Part – B

- Matching type questions (Theory Portion only) [5 x 2 = 10]

Part – C (Answer any **Five** Questions)

[5 x 4 = 20]

- Five questions to be answered, Question C6 is compulsory (Practical portions for courses with practical)
- **C6. ---------- (or) ----------**

Final practical exam split up as follows

S. No.	Particulars	Norms	Allotted Marks
1.	Attendance	Minimum of 80%	Pre-requisite for writing the final practical examination
2.	Record	Continuous evaluation	5 marks (Evaluated by Course Teacher)
3.	Assignment	A. Presentation	1 mark (Evaluated by Course teacher)
		B. Written part i. Web page copying not allowed ii. Should be hand written iii. Minimum two references from books	2 marks (Evaluated by Course Teacher)
		C. Answering the questions	2 marks (Evaluated by External Examiner)
4.	Identification / Spotter		5 marks (Evaluated by External Examiner)
5.	Experiments	Experiments / Field work / lab work / calculation	10 marks (Evaluated by External Examiner)
6.	Case study		10 marks (Evaluated by External Examiner)
7.	Viva Voce	Minimum of 5 questions	5 marks (Evaluated by External Examiner)

Preparation of Statement of Marks

The semester statement of marks shall be prepared by the Controller of Examinations. The Deans of Colleges should send the mid-semester marks in typed hard and soft copy (or email) within 15 days after the conduct of the examination. The final practical marks should be in hard and soft copy (or mail) within 10 days after the completion of 105 working days. This should also accompany the attendance particulars of regular students to incorporate the attendance in the class grade chart by the Controller of Examinations.

Evaluated answer paper view by student

After evaluation the answer script can be viewed by students using password provided, if there are any discrepancies in awarding marks, the student can approach the teacher concerned and report to Controller of Examinations office, for rectification.

Evaluated final theory answer script /papers may be retained up to six months by the Controller of Examinations after the conduct of examination and then disposed off. The same is applicable to improvement / re-examination also.

Minimum grades for registration

- In order to register for the III year courses (V semester), the student should have completed successfully all the I year courses (semester I & II) registered.
- In order to register for final year courses (VII semester) the students should have successfully completed all courses registered up to second year. (semester I,II,III &IV).

Symbols used for grading

The following symbols shall be used for grading

E	–	INCOMPLETE (Lack of 80% Attendance or otherwise)
F	–	FAILED(grade point 0.00 or total mark < 60)
RR	–	RE-REGISTRATION
RE	–	RE- EXAMINATION
IE	–	IMPROVEMENT EXAMINATION
EE	–	INCOMPLETE FOR OTHER REASONS

Removal of difficulties

1. A student has to secure 60 marks out of 100 to become eligible for the pass of concerned course.
2. Previous pass criteria of 50% marks separately in theory and practical to get pass in the subject is removed (2018 batch onwards).

MODEL QUESTION PAPER

TAMIL NADU AGRICULTURAL UNIVERSITY
B.Sc. (Hons). (Agri.) Degree Programme
Final Theory Examination, December 2018

Year :2018 **(2017 Syllabus)** **Time : 3 hrs**
Semester: I **Max. Marks: 70**

(Type the course Number and Title)

PART-A

(Answer **All** questions) **[80 x 0.5 = 40]**

Choose the correct answer

A1 to A60 (Theory Portion) & A61 to A80 (Practical Portion)

UNIT – I (A1 - A12)

A1. Pasteurization is a process so devised that,
- A) All the microorganisms are removed
- B) **Only pathogenic forms are removed**
- C) Only non-pathogenic forms are removed
- D) None of these are correct

A2. Gram-positive bacteria
- A) Have peptidoglycan in their cell walls, whereas Gram-negative bacteria do not have
- B) Have lipopolysaccharides in cell walls and thus may be more pathogenic than Gram- negative bacteria
- C) An outer membrane around their cell walls
- D) **Have simpler, thick peptidoglycan cell walls**

A3. The maximum resolution power of the compound microscope achievable is
- A) **0.2 micron**
- B) 0.2 millimeter
- C) 0.2 Angstrom units
- D) 0.2 centimeter

A4. Which of the following is an ionizing radiation?
- A) Ultra violet rays
- B) **Gamma rays**
- C) Infra-red rays
- D) Radiowaves

A5. Which of the following is a sterilizing agent?
- A) **Ethylene oxide**
- B) Oxygen
- C) Nitrogen
- D) Carbon tetrachloride

A6. Metachromatic granules are chemically composed of
- A) Lipids
- B) Proteins
- C) **Polyphosphates**
- D) Polysaccharide

A7. The first gelling substance used in microbiological studies by Robert Koch was,
- A) Peptone
- B) Agar-agar
- C) Silica gel
- D) **Gelatin**

A8. The size of ribosomes in prokaryotes is
- A) 60S
- B) **70S**
- C) 50S
- D) 30S

A9. UV ray at a wavelength of _____ nm is highly bactericidal.

A) 385 B) 240
C) **265** D) 420

A10. Bacteria stain more readily when _____ type of stain is used to stain them.

A) Acidic B) **Basic**
C) Negative D) Neutral

A11. Occurrence of flagella all over the cell surface of a bacterium is known as _____.

A) Lopotrichous B) Dextrotrichous
C) Amphitrichous D) **Peritrichous**

A12. A culture medium the exact composition of which is known is called as _____.

A) Defined, known B) **Defined, synthetic**
C) Defined, natural D) Undefined, semi-synthetic

UNIT – II (A 13 – A 24)

A13. _____ microscopy allows for the visualization of internal components within live, unstained specimen.

A) Fluorescent B) Electron
C) Dark-field D) **Phase contrast**

A14. The component of microscope useful in making the light rays more parallel is _____.

A) Iris diaphragm B) **Condenser lens**
C) Objective lens D) Mirror

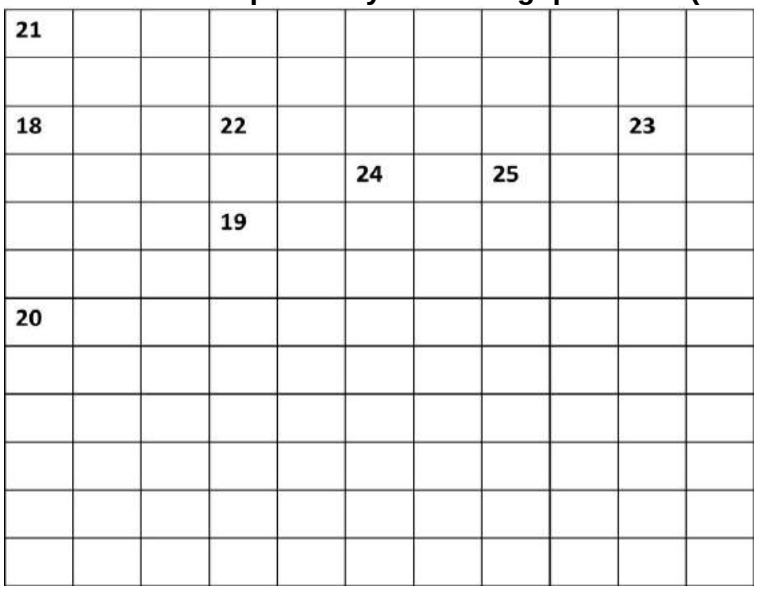
A15. A drop of immersion oil placed between the tip of the oil immersion lens and the specimen on a glass slide is to _____ the Numerical aperture value.

A) **Increase** B) Equillibriate
C) Decrease D)

A16. A chemical agent that is applied directly to body surfaces, wounds, and surgical incisions to destroy or inhibit vegetative pathogens is called _____.

A) Sanitizer B) Microbistatic agent
C) **Antiseptic** D) Disinfectant

Complete the crossword puzzle by answering questions (A 17 - A 24)



A17. Round robin ….. bacteria
- A) Tumble
- B) Taxis
- C) **Coccus**
- D) E.coli

A18. Evolutionary and relationship
- A) History
- B) **Phylogeny**
- C) Species
- D) Woese

A19. Chemist with a theory of fermentation
- A) Lister
- B) Jenner
- C) **Pasteur**
- D) Hooke

A20. First to have pure cultures of many human pathogens
- A) Lister
- B) Jenner
- C) Pasteur
- D) **Koch**

A21. Slippery, peripheral bacterial over coat
- A) Membrane
- B) **Capsule**
- C) Exosporium
- D) Fimbriae

A22. Fission is the name of bacterial division
- A) Longitude
- B) Lateral
- C) Budding
- D) **Binary**

A23. A motorized rotating appendage
- A) **Flagellum**
- B) Pili
- C) Fimbriae
- D) Locomotor

A24. Kudos to Madam Hesse…no replacement yet
- A) Rosebengal
- B) **Agaragar**
- C) Gelatin
- D) Staining

UNIT – III (A 25 - A 36)

Consider the inter-relatedness of the descriptors given for each of the following questions (25 – 28). Choose the BEST lettered response that represents your understanding of their relatedness.

A25. Francesco Redi, Louis Pasteur, Maggots, Broth, Gauze

A) Vaccination B) Germ theory of disease
C) **Spontaneous generation** D) Magic bullet

A26. Protein, Facilitates infection, Numerous, Binds carbohydrates, Bristle-like

A) Flagella B) Capsule
C) **Fimbriae** D) Slime

A27. Protein, Carbohydrate, Lipid, 80% water, Elastic, Inorganic ions and gases

A) chromosome B) **Cytoplasm**
C) membrane D) Cell wall

A28. Lens, lambda, refractive index, half aperture angle

A) **Resolution** B) Magnification
C) Condensor D) Objective

Read the poem and answer the below questions (29 – 32)

The Microbe Song

There are small creatures that I know
Live in the mountains live in your nose
Live in volcanoes live in the sea
Some even live in you and me

Now some are animals, some are plants
Some aren't either like the protozoan
Some roam alone like the water flea
Others live in colonies

I'm talkin' bout micro micro microorganism
Need a microscope to see microorganism
Now some are helpful some do harm

A29. What does the first stanza of the poem denotes that microorganisms are?

a) Abundant b) Living
c) **Ubiquitous** d) Tiny and microscopic

A30. Line three of the second stanza of the poem, indicates that some microorganisms are

a) Aquatic b) **Independent**
c) Motile d) Animal like

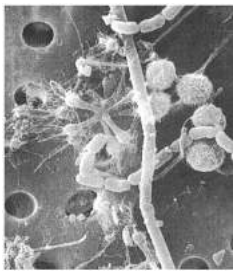
A31. Find below the microorganism doing harm to human or animals

a) *Bacillus* b) *Escherichia*
c) *Lactobacillus* d) ***Mycobacterium***

A32. Why microbes live across all habitats, how unique or harsh they are?

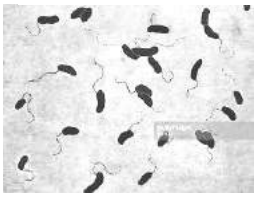
a) Microbes are small b) Microbes are everywhere
c) **Microbes are oldest life** d) Microbes occur in huge numbers

Observe the following figures critically to answer the questions (33 – 36)

i. 

ii. 

iii. 

iv. 

A33. Indicate the process the figure i represents.

A) Pasteurization
B) **Filtration**
C) Staining
D) Isolation

A34. From figure ii, draw out the best conclusion

A) **Microorganisms from the air settled in the bends and sides of the flasks, never reaching the broth.**
B) Sterile broths in specially constructed swan-necked flasks will be contaminated when left open to air
C) Germs in the air were able to fall unobstructed down the swan necked flask and contaminate the broth
D) Spontaneous generation is a real phenomenon, the broth in the curved-neck flask had been infected with germs spontaneously generated

A35. What is the morphological category of the bacterium represented in figure iii?

A) Lactobacillus
B) **Streptobacillus**
C) Bacillus
D) Curved bacilli

A36. Identify the microorganism based on its morphology

A) *Staphylococcus aureus*
B) *Escherichia coli*
C) ***Vibrio cholerae***
D) *Rhizobium leguminosarum*

UNIT – IV (A 37 – A 48)

A37. Plate count of bacteria in foods generally use the plating medium consisting of

A) peptone, yeast extract, glucose, sodium chloride, agar and distilled water
B) yeast extract, glucose, sodium chloride, agar and distilled water
C) peptone, glucose, sodium chloride, agar and distilled water
D) peptone, yeast extract, glucose, sodium chloride and distilled water

A38. Observe the entities and answer with reason:
(i) bacteria and archaebacteria
(ii) prokaryotic organism

A) All members of (i) are also members of (ii), but not all members of (ii) are members of (i)
B) All members of (ii) are also members of (i), but not all members of (i) are members of (ii)
C) All members of (i) are also members of (ii), and all members of (ii) are members of (i)
D) Some members of (i) are also members of (ii)and some are not, and some members of (ii) are members of (i) and some are not

A39. Which order of arrangement of insect leg segments is True

A) Coxa, Femur, Trochanter, Tibia and Tarsus
B) Coxa, Trochanter, Femur, Tibia and Tarsus
C) Coxa, Trochanter, Tibia, Femur and Tarsus
D) Coxa, Trochanter, Tibia, Tarsus and Femur

A40. Gestation period of cattle is

A) 280±5 days
B) 290±5 days
C) 260±5 days
D) 250±5 days

A41. The time temperature combination for HTST pasteurization of 71.1°C for 15 sec is selected on the basis of

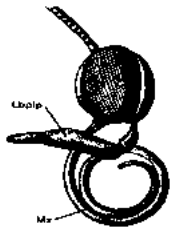
A) *Escherichia coli*
B) *Coxiellaburnetii*
C) *Bacillus subtilis*
D) *Clostridium botulinum*

A42. Consider the following statements:
Characteristic feature of weeds are
i) Highly competitive and adaptable to varied situations.
ii) Reproductive mechanism is slower than crop plants.
iii) Prolific seed producer.
iv) Weeds compete with crops for water, soil, nutrients, light, and space and increase the crop yields.

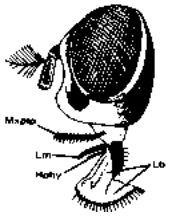
A) i , ii, iii and iv are correct
B) i,ii and iii are correct
C) I and iii are correct
D) i,iii and iv are correct

A43. Indicate type of mouthparts present in butterflies

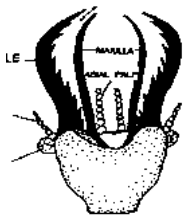
A)



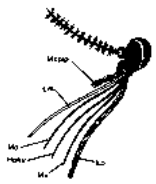
B)



C)



D)



A44. “I found floating there in earthly particles, some green streaks, spirally wound serpent-wise, and orderly arranged, the whole circumstance of each of these streaks was about the thickness of a hair on one’s head”. These words are of

A) Louis Pasteur
B) Robert Koch
C) John Needham
D) Anton Van Leeuwenhoek

A45. Which of the following is **not correctly** matched component with its function?

A) Chloroplast - Photosynthesis
B) Mitochondria - Energy production
C) Ribosome - Protein synthesis
D) Carboxysomes - nutrient transport

A46. Viruses have all characteristics, except

A) Has either DNA or RNA
B) Are obligatory parasite
C) Has metabolic machinery
D) Are non-cultivable on laboratory media

A47. Glucose, made from six radioactively labelled carbon atoms, is fed to yeast cells in the absence of oxygen. How many molecules of radioactive alcohol (C_2H_5OH) are formed from each molecule of glucose?

A) 1
B) 2
C) 4
D) 6

A48. Dry storage means at a temperature about _____ and humidity below_____ %

A) 80°C and 80%
B) 20°C and 50%
C) 20°C and 100%
D) 20°C and 90%

UNIT – V (A 49 – A 60)

A49. Compare the following entities and answer with reasons:
(i) ability of membrane filtration to sterilize a heat labile culture medium
(ii) ability of autoclaving to sterilize the same heat labile culture medium

A) (i) is greater than (ii)
B) (ii) is greater than (i)
C) (i) is exactly or approximately equal to (ii)
D) (i) may stand in more than one of the above relations to (ii)The grand

A50. Which statement is False with reference to functions of insect body wall

A) Allows invasions of parasites, predators, and pathogens as body wall layers are permeable
B) Provides space for muscle attachment and gives shapes to the insects
C) Provides rigidity and flexibility to insects for easy movement
D) Cuticular respiration takes place through body wall

A51. More pliable insect tagma is ----------

A) Head
B) Thorax
C) Abdomen
D) All three

A52. Abnormal insect with male and female sexual organs in same body is called as

A) Hermaphrodite
B) Sexual dimorphism
C) Gynandromorph
D) None

Answer the questions based on the below pictures(53 - 56)

Asexual spores produced by the fungi are presented below. Identify the organism or its order which produce the spores.

a b c d

A53. Identify the zoospore produced by *Plasmodiophorabrassicae*

A) a
B) b
C) c
D) d

A54. Identify the zoospore produced by *Pythium*

A) a
B) b
C) c
D) d

A55. Identify the aplanospore produced by *Rhizopus*

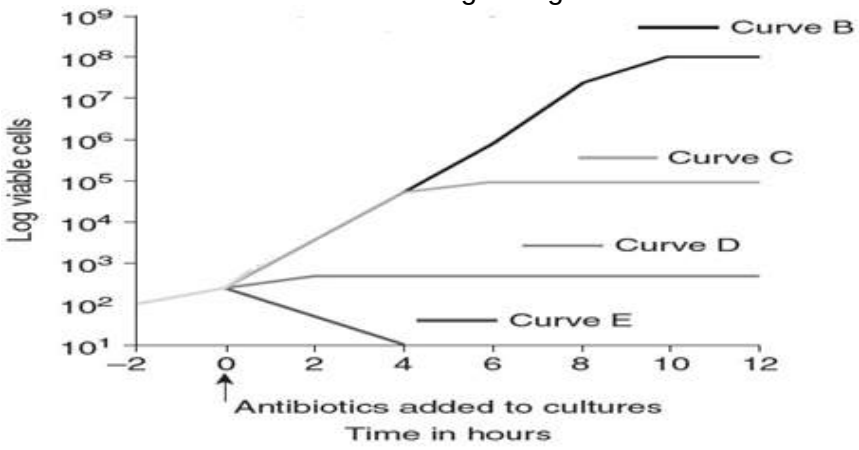
A) a B) b
C) c D) d

A56. Identify the exogenous asexual spore

A) a B) b
C) c D) d

Answer the questions (57 - 60)

The following five growth curves are entered (B to E) corresponding to an expected growth curve if certain antibiotics were added to an exponentially growing culture of *E. coli*. The arrow indicates when antibiotics were added to the growing culture.



Growth curves in the presence or absence of antibiotics

A57. Penicillin treatment would be expected to produce which one of the following growth curves?

A) B B) D
C) C D) E

A58. Chloramphenicol would be expected to produce which one of the following growth curves?

A) B B) D
C) C D) E

A59. Sulfonamide would be expected to produce which one of the following growth curves?

A) B B) D
C) C D) E

A60. If no antibiotics were added to the exponentially growing culture, which one of the following growth curves would result?

A) B B) D
C) C D) E

Questions from Practical portion (A 61 – A 80)

A61. Hardness of water is due to

A) Ca alone B) Mg alone
C) Ca + Mg D) Ca + ½ Mg

A62. Molacity is denoted

A) 'm' B) 'M'
C) 'Mm' D) 'mm'

A63. Calculate the 0+1 ion conc
The phenolphthalein alkalinity is 0

A) 0 B) 1
C) -1 D) 10

A64. The sample collected from river is comes under
A) Crab sample B) Catch sample
C) Lategrated sample D) Composite sample

A65. The Auger-hole method is used for determining
A) Bulk density B) Hydraulic conductivity
C) Soil depth D) Deep percolation

A66. In waterlogged soil the concentration is more of
A) Ethane B) Methane
C) CO2 D) Carbon monoxide (CO)

A67. Bulk density of soil normally decreases with increase of
A) Sand particles B) Silt particles
C) Clay particles D) Stone particles

A68. Soluble salts in ground water originate mainly from
A) The recharge of contaminated water B) The excessive irrigation water percolating through the root zones of cultivated area
C) The solution of the rock material D) The water originally entrapped in sedimentary strata since the time of deposition

A69. Darcy's law is invalid for flow which is
A) Non-turbulent B) Non-laminar
C) Laminar D) Saturated

A70. Potato crop should be irrigated at available water depletion of
A) 25% B) 50%
C) 80% D) 100%

A71. The fundamental equation describing saturated flow in a porous media is attributed to
A) Darcy B) Navier-Stokes
C) Dupuit-Forechheimer D) Kozeny

A72. Sugar is dissolved in water due to
A) Dipole B) H+ bonding
C) Low pH D) Higher energy

A73. The infiltration rate of water into a soil is inversely proportional to the
A) Elapsed time B) Square of the elapsed time
C) Square root of the elapsed time D) Cubic root of the elapsed time

A74. Identify the low head and very high discharge pump
A) Centrifugal pump B) Turbine pump
C) Propeller pump D) Submersible pump

A75. A tensiometer is a device for measuring
A) Water potential B) Gravitational potential
C) Matric potential D) Pressure potential

A76. Water is a universal solvent because it is/has
A) Liquid B) Found everywhere
C) pH value 7 D) High dielectric constant

A77. The pan coefficient of class 'A' pan evaporimeter is taken as
A) 0.007 B) 0.7
C) 5.5 D) 7.0

A78. In shallow stream, the velocity measurement is taken at

A) 0.2 of water depth B) 0.6 of water depth
C) 1.0 of water depth D) 1.2 of water depth

A79. Sodium adsorption ratio (SAR) of water is expressed as
A) Mg L-1 B) me kg-1
C) (me L-1) ½ D) (me L-1)-½

A80. During wind erosion, finer soil particles of 0.002 mm diameter move in the
A) Surface creep B) Suspension
C) Saltation D) Sheet

PART-B

(Answer **All** the questions)

[5 x 2 = 10]

Match the following (Theory Portions only)

Unit I

A81.

1.	Le Notre	a)	English gardens
2.	Flowering annuals	b)	Garden principles
3.	Mobility	c)	Shallow stream
4.	Marsh garden	d)	French garden

A) 1a-2b-3c-4d B) 1a-2b-3c-4d
C) **1d-2a-3b-4c** D) 1d-2b-3c-4a

Unit II

A82.

1	Outer tea garden	a)	For Enjoyment of Royal Couples
2	Inner tea garden	b)	Soto- Roji
3	Promododyan	c)	Emperor Ashoka
4	Arboriculture	d)	Uchi- Roji

A) **1b-2d-3a-4c** B) 1a-2b-3c-4d
C) 1d-2a-3b-4c D) 1d-2b-3c-4a

Unit III

A83.

1	*Althaea rosea*	a)	Sweet William
2	*Celosia plumosa*	b)	Pot marigold
3	*Dianthus barbatus*	c)	Hollyhock
4	*Calendula officinalis*	d)	Cocks comb

A) **1c-2d-3a-4b** B) 1a-2b-3c-4d
C) 1b-2d-3a-4c D) 1d-2b-3c-4a

Unit IV

A84.

1	Bog garden	a)	With slope surface
2	Vertical garden	b)	Below the ground
3	Sunken garden	c)	Above the ground
4	Terrace garden	d)	Marshy areas

A) 1b-2d-3a-4c B) 1d-2b-3c-4d
C) 1d-2d-3a-4c D) **1d-2c-3b-4a**

Unit V

A85.

1	*Ctrl* c	a)	Undo
2	*Ctrl* p	b)	Print
3	*Ctrl* x	c)	Copy
4	*Ctrl* z	d)	Cut

A) 1b-2d-3a-4c B) 1c-2b-3c-4d
C) 1c-2d-3a-4c D) **1c-2b-3d-4a**

PART-C

(Answer any **Five** questions only) **[5 x 4 = 20]**

C1 – C5 Theory Portion, C6 is compulsory Question from Practical Portion

C1. Enumerate the temperate fruit cultivars suited for subtropical climate.

C2. Mention the constraints of fruit cultivation in Tamil Nadu.

C3. Write on the scope and importance of hill banana in southern India.

C4. An engine running at 150 rpm drives a line shaft by means of a belt. The engine pulley is 750 mm diameter and the pulley on the line shaft is 450 mm. A 900 mm diameter pulley on the line shaft drives a 150 mm diameter pulley keyed to a dynamo shaft. Find the speed of dynamo shaft, when
i). There is no slip
ii). There is slip of 2% at each drive.

C5. Write the differences between sympathetic and parasympathetic nervous system.

C6. Describe about assessment of suspended particulate matter

or

The samples of 5 species are species A: 60, species B: 10, species C: 25, species D: 1, species E: 4. Calculate the Shannon diversity index & evenness for these sample values?

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